

Having thus defined the invention, the following is claimed:

1. A wire feeder for an electric arc welder comprising a set of feed rolls driven by a DC motor with a commutator, first and second opposite polarity leads receiving power to drive said motor, and having a first brush at a given position on said commutator and connected to said first lead, a second brush circumferentially spaced from said first brush a first annular distance around said commutator and connectable to said second lead to cause said motor to rotate at a first speed to drive said rolls at a first speed, a third brush circumferentially spaced from said first brush a second annular distance around said commutator and connectable to said second lead to cause said motor to rotate at a second speed to drive said rolls at a second speed, and a switching circuit with an operative condition to connect said second lead to a selected one of said second and third brushes.

2. A wire feeder as defined in claim 1 wherein said switch circuit is operated manually.

3. A wire feeder as defined in claim 1 including a controller with a first output signal causing said switch circuit to select said second brush and a second signal causing said switch circuit to select said third brush.

4. A wire feeder as defined in claim 3 wherein said controller output signal is caused by an input signal indicative of wire size.

5. A wire feeder as defined in claim 4 wherein said wire feeder includes a fixed ratio gear reducer between said motor and said feed rolls.

6. A wire feeder as defined in claim 3 wherein said wire feeder includes a fixed ratio gear reducer between said motor and said feed rolls.

7. A wire feeder as defined in claim 2 wherein said wire feeder includes a fixed ratio gear reducer between said motor and said feed rolls.

8. A wire feeder as defined in claim 1 wherein said wire feeder includes a fixed ratio gear reducer between said motor and said feed rolls.

9. A wire feeder as defined in claim 8 wherein said switching circuit when in the condition to select said second brush has a time delay for selecting said third brush for a time before selecting said second brush.

10. A wire feeder as defined in claim 3 wherein said switching circuit when in the condition to select said second brush has a time delay for selecting said third brush for a time before selecting said second brush.

11. A wire feeder as defined in claim 2 wherein said switching circuit when in the condition to select said second brush has a time delay for selecting said third brush for a time before selecting said second brush.

12. A wire feeder as defined in claim 1 wherein said switching circuit when in the condition to select said second brush has a time delay for selecting said third brush for a time before selecting said second brush.

13. A wire feeder as defined in claim 12 including a circuit to latch said switch circuit in said operative condition when power is received by said leads.

14. A wire feeder as defined in claim 8 including a circuit to latch said switch circuit in said operative condition when power is received by said leads.

15. A wire feeder as defined in claim 3 including a circuit to latch said switch circuit in said operative condition when power is received by said leads.

16. A wire feeder as defined in claim 2 including a circuit to latch said switch circuit in said operative condition when power is received by said leads.

17. A wire feeder as defined in claim 1 including a circuit to latch said switch circuit in said operative condition when power is received by said leads.

18. A wire feeder for an electric arc welder comprising a set of feed rolls driven by a motor and a switching condition to change the speed of said motor between a first and second speed.

19. A wire feeder as defined in claim 18 wherein said switch circuit is operated manually.

20. A wire feeder as defined in claim 19 wherein when said switching circuit selects said first speed a circuit selects said second speed for a time to accelerate said feed rolls for said time.

21. A D.C. motor for driving a wire feeder for an electric arc welder, said D.C. motor having a commutator, first and second opposite polarity leads receiving power to drive said motor, a first brush at a given position on said commutator and connected to said first lead, a second brush circumferentially spaced from said first brush a first annular distance around said commutator and connectable to said second lead to cause said motor to rotate a first speed and a third brush circumferentially spaced from said first brush a second annular distance around said commutator and connectable to said second lead to cause said motor to rotate at a second speed.

22. A wire feeder for an electric arc welder comprising a set of feed rolls driven by a D.C motor with a commutator, first and second opposite polarity leads receiving power to drive said

motor and having a first brush at a given position on said commutator and connected to said first lead
and a second brush circumferentially spaced from said first brush an annular distance around said
5 commutator and connected to said second lead and a device to change the annular distance to change
the speed of said motor driving said feed rolls.